ORIGINAL PAPER

DOI: 10.26794/2587-5671-2024-28-4-228-238
JEL M41

The Real Earnings Management Mediation: Relation between CEO Overconfidence and Subsequent Performance

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ABSTRACT

The **purpose** of this study is to identify the relationship between the CEO overconfidence and the subsequent performance. Furthermore, the study examines the intermediary role of Real Earnings Management (REM). The SPSS version of PROCESS is used to assess the direct, indirect and total effects of CEO overconfidence on subsequent performance. The number of bootstraps for percentile bootstrap confidence intervals is 50 thousand. The **results** of the study showed that the CEO overconfidence has a significant positive impact on the company's subsequent performance. Furthermore, REM acts as a mediator between the overconfidence of the manager and future indicators. The results of this paper may be of interest to accounting regulators, as excessive confidence may affect future performance through REM. This information may be useful in assessing the need for overconfidence managers. This study complements the existing lack of empirical data on the indirect impact of managers' overconfidence on the company's subsequent performance.

Keywords: CEO overconfidence; subsequent performance; real earnings management

For citation: **Fahd M.A. The Real Earnings Management Mediation: Relation between CEO overconfidence and subsequent performance.** ***Finance: Theory and Practice.*** **2024;28(4):228-238. DOI: 10.26794/2587-5671-2024-28-4-228-238**

INTRODUCTION

According to Jensen [1], managers place their own interests above those of the shareholders. Although managers can use the flexibility allowed by the principles of accounting to manipulate the accounting numbers that is not the single tool at their disposal to attain earnings targets. The direct effect of REM on cash flow will have an impact on earnings. REM is described by Roychowdhury [2] as "*departures from normal operational practices, motivated by managers' desire to mislead at least some stakeholders into believing certain financial reporting goals have been met in the normal course of operations.*"

Due to the CEO's significant influence over operational choices, they have an advantage over the CFO when conducting REM. The CEO is frequently regarded as having the most authority within an organization. CEOs are responsible for the company's performance and have authority over corporate decisions like forming the board and disclosing financial information. Given the CEO's responsibility for the company's performance, managerial discretion might be more likely [3]. According to agency theory, managers are driven to prioritize their own interests over those of the shareholders [1]. Therefore, further research is required to determine how the CEO's attitudes and the firm's manipulations are related.

Prior studies have clearly demonstrated the impact of CEO's traits and earnings manipulations, including tenure, experience, compensation, and CEO power [4]. Additionally, after the passage of SOX, executives in the American context used REM more frequently than accrual earnings management, despite REM's higher cost [5].

The irrationality of investors and managers is examined in behavioral financial and accounting studies. This paper will concentrate on the irrationality of managers. This irrational executive strategy implies that the manager is maximizing the performance and value of the company, even though he might not be. The primary bias in this case is overconfidence, and research in psychology shows that managers are more likely to display this bias [6]. CEOs who are overconfident frequently overestimate their skills and undervalue risks. Therefore, it is interesting to examine how overconfidence affects their choices of business policies and assess how it ultimately affects firm performance.

Recent literature in the field of behavioral accounting focused on the effects of CEO overconfidence on accounting and reporting decisions. Bhandari and Deaves [7] state that overconfidence bias is "*the tendency of individuals to overestimate their knowledge, abilities, and the precision of their information.*" Because of previous successes or experiences, people overestimate their

estimates, perceptions of their abilities, and assessments of their skills [8].

According to "upper echelons theory" published by Hambrick and Mason [9] managerial background traits of the upper levels of management can help predict organizational results. It is based on the notion that top executives, who serve as key decision makers, can have an impact on the company's impact on the creating value, decisions, and disclosure choices of the company through their unique individual traits and professional expertise. Due to the widespread attention given to this assumption, researchers are now concentrating on the role that behavioral biases play in decision-making [10]. According to the theory of the upper echelons, executives are vulnerable to cognitive distortions that can result in significant departures from objectivity because manager behavior and attitude can predict business decisions. Finally, these predictions are supported by empirical evidence from the behavioral literature.

According to Hambrick and Finkelstein [9], a CEO with discretionary authority has the power to influence organizational results and decision-making processes through his unique viewpoints and personal traits. Such an impact would be detrimental to firm performance levels. The CEO has an advantage over the chief financial officer when implementing REM because they are the ones who make the final operational decision [11].

The bias of executive overconfidence and its relation to firm performance are of particular interest to behavioral finance researchers. Various studies demonstrate the impact of this bias on subsequent performance [12]. However, the indirect relation between CEO overconfidence and subsequent performance has not been examined in the Egyptian literature. As a result, there has been a gap in the previous literature. This paper fills that gap by addressing interesting research questions. A CEO's overconfidence actually has a complex effect on a firm's performance that can extend beyond a straightforward, uncomplicated effect. To fully comprehend the relationships between managerial overconfidence and performance of the firm, it is essential to investigate the mechanisms underlying this relationship.

The previous literature examined how REM affects firm performance. However, the focus on current-year performance is frequently what drives earnings management. According to Gunny [13], it seems beneficial in the current period and aids in reporting a positive image, but it might be detrimental to future performance. Therefore, a channel is suggested by which CEO overconfidence may affect subsequent performance. The firm's relation with managerial discretion, or REM, is where the intermediary factor comes from.

This research adds to the literature because it informs readers of financial information, analysts, and legal institutions about the intrinsic and acquisitive traits of CEO's that are vital to the quality and readability of financial information. If the value of managerial overconfidence can have a substantial impact on how firms behave, it is logical to make managers responsible for the quality of the information in financial reports. This paper is among the earliest to empirically examine inferences from experimental accounting studies in the Egyptian context.

LITERATURE REVIEW AND HYPOTHESES DEVELOPMENT

CEO Overconfidence and Subsequent Performance

Malmendier and Tate [14] provided evidence of the behavioral deviations related to overinvestment by overconfident CEOs. Additionally, they make unnecessary investments, act in a way that has an adverse influence on the outcomes and value of the firm.

Gervais et al. [15] stated that CEO overconfidence not only motivates managers to make decisions that benefit shareholders, but also motivates managers to work better, which enhances firm performance. Goel and Thakor [16] proposed beneficial roles for overconfident CEOs. It enhances decision implementation, encourages agents to take calculated risks, and increases stock returns for the benefit of principals. This leads to better firm performance.

Ruissen [17] explored how managerial overconfidence affected firm performance from 2005 to 2010. He discovered that executive overconfidence positively influences performance as measured by ROA and Tobin's Q using an options-based measure for overconfidence.

Hirshleifer et al. [18] examined how overconfidence affects subsequent performance measured by ROA. They revealed a link between CEO overconfidence and subsequent performance between 1993 and 2003.

Han et al. [19] investigated the impact of overconfidence on the performance of US firms providing property liability insurance from 1996 to 2013. They discovered that CEO overconfidence positively affects the firm's performance.

CEO overconfidence positively affects firm performance, as shown by Mundi and Kaur [12]. In comparison to the full sample of firms, Indian companies with overconfident executives have greater Tobin's Q and returns on assets, according to data gathered over a 15-year period. The results are important for practitioners who make decisions about corporate policy, create appropriate compensation plans, and choose CEOs for their companies.

According to Hyun et al. [20], the future profitability of a company is significantly influenced by the CEO's overconfidence. They found that companies of overconfidence bias have higher net operating asset returns using US data from 1992 to 2010. According to the findings, companies with overconfident executives have earnings components that are better at predicting potential earnings change. Further analyses are conducted to further explore the relationship between executive overconfidence and stock performance, which is positively associated with abnormal stock market returns as a proxy for stock performance. The findings of previous studies raise the question of whether overconfident CEOs will achieve better performance or not. In considering the aforementioned framework, the following research hypothesis is proposed:

H_1: managerial overconfidence significantly affects subsequent performance.

Managerial Overconfidence and REM Activities

Watts and Zimmerman [21] argue that management of profits may be a trait of opportunistic practices because of its exante gain with redistribution of wealth consequences in between the contractual parties. Earnings management is possible because accounting standards and laws are flexible. The handling or management of outcomes with the intent of attempting to portray a different (worse or better) image in accordance with the relevant interests.

Additionally, psychological components must be taken into account when examining how managers behave when making decisions about the financial information reported. According to behavioral researchers, managers' overconfidence when providing information to the stock market is a significant aspect of their human behavior (Hribar and Yang, 2016).

Previous literature has analyzed overconfidence as a key factor in the stock exchange because it could influence how people behave and how organizations make decisions. Due to accounting decisions that are unrelated to economic reality, the results that companies present through their financial reports may result from their CEOs' opportunism cognitive biases. These biases, which push executives toward earnings management practices, may be caused by external influences on the firm and by individual behaviors [22].

The CEO's overconfidence reveals CEO optimism, which can be biased when making decisions. Additionally, they regularly engage in earnings management to hide firm performance that does not meet their expectations [23]. Hsieh et al. [24] claim that overconfident managers might prefer to use REM to meet specific financial targets rather than the management of accrual earnings. This includes manipulating sales and reducing discretionary expenditure.

Habib et al. [25] found evidence that CEOs who are overconfident engage more in REM. There is also evidence that overconfident executives experience less regulatory restraint. Therefore, they are more probably to employ REM to achieve their earnings benchmarks.

Kouaib and Jarboui [26] place emphasis on the connection between CEO characteristics and real earnings management, and they discovered that personal characteristics of CEOs are significantly linked to limiting R&D spending to manage earnings and meet earnings targets. Kouaib and Jarboui [27] examine the influence of executive overconfidence on REM for non-financial European companies. They discovered that CEOs who are not overconfident use more REM than overconfident CEOs.

According to Chang et al. [28], overconfident executives have a propensity to act aggressively or even irrationally when making investment and financial decisions for their firms. They overestimate potential investment projects as part of their irrational managerial behaviors. Quite specifically, management of earnings plays a major role in firm decisions.

According to Li et al. [29], managers' opportunistic behavior increases with overconfidence. According to the empirical study, overconfidence increases expectations for subsequent performance, and managers who exhibit

these traits are more likely to use earnings management to meet analyst expectations.

H_2: CEO overconfidence significantly affects REM activities.

The Mediating Relationship of REM

Overconfident CEO's might be more probably to employ REM. They believe that they might be able to avoid possibility of legal action or reputational damage from this misstatement, and they are attempting to signal an increased subsequent performance to adjust market expectations. Hung and Li [30] investigate how family concentrated ownership affects the relationship between CEO overconfidence and the EM of Taiwan-listed firms. They demonstrate that, after assessing income increasing discretionary accruals, executive overconfidence bias raises the incentive to manipulate earnings.

In a survey paper by Graham et al. [31], it was found that managers are willing to engage in REM activities in order to maintain accounting performance. According to the survey, 80% will cut discretionary spending and 55.3% will delay or postpone new projects in order to achieve an intended goal, even if it means sacrificing value.

According to research by Bens et al. [32], companies use stock repurchases as a means of manipulating shareholder earnings by diverting capital from real investments. They also investigate evidence that, following such REM activity, organizational performance decreased for a period. In the current period, REM will directly increase earnings, ROA, and operating cash flow [33]. However, Gunny [13] revealed that REM negatively affects subsequent firm performance using the proxy future cash flows, compared to accrual earnings management.

Berry-Stolzle et al. [34] use the insurer›s reserve for errors as a proxy for managerial discretion to investigate the link between EM and CEO overconfidence. They revealed an inverse correlation between executive overconfidence and errors in insurer reserves following the control of firm characteristics. According to this finding, managers who are overconfident have a tendency to underestimate reserves for losses in the future and, hence, will result in higher reported earnings. Hsieh et al. [24] argued that overconfident executives are more likely to participate in REM due to low discretionary expenses and abnormally high cash flows, which work against regulators› efforts to restrain EM.

Cohen et al. [5] argued that REM has an influence on firm's subsequent performance that is higher than if the firm practice accrual earnings management. The study by Kumar and Goswami [35] studies the impact of REM on the subsequent performance of Indian firms. According to regression results, REM practices have a negative impact on both market and accounting performance. Gunny [36] found that while REM may be beneficial in the current period and reports a positive image, it could be harmful to the company's future performance.

Roychowdhury [2] states that engaging in REM is expensive and directly reduces firm value. Gunny [36] agreed with this idea. She explored how REM will influence future operating performance as measured by earnings and cash flows. Results show a substantial decrease in the future performance of companies that were found to be using REM to manipulate discretionary expenditures, special sales discounts, and inventory overproduction to avoid a loss or maintain prior-year earnings.

Managerial overconfidence supports managing earnings in the current period by using REM. As a result, executives who practice REM have low subsequent performance. This chain suggests an indirect relationship between subsequent performance and overconfidence. Managerial overconfidence might influence future performance in part because it affects REM practice, which then affects subsequent performance.

According to Chatterjee et al. [37], a CEO with overconfidence is more probably to be optimistic about subsequent performance and is more probably to manage earnings to meet expectations. Overconfident managers will be driven to indulge in REM activities, which will lower the firm's subsequent performance. Consequently, overconfident CEOs affect future performance indirectly through engaging in REM practices.

Sutrisno et al. [38] investigated how an overconfident executive has an impact on real earnings manipulation and indirectly influences future outcomes. Three metrics are employed for measuring overconfident CEOs in order to get reliable results. Data obtained from manufacturing firms that are traded on the Indonesia stock exchange between 2015 and 2017 were included in the sample. The findings of

this paper demonstrate that overconfidence has no impact on managing real earnings manipulations. The other findings of this paper also suggest that real earnings manipulations and managerial overconfidence negatively affect firm's subsequent performance. The findings of this study's testing, however, reveal that real earnings manipulations did not mediate the relation between overconfidence and a company's future operational performance. According to the aforementioned guidelines, the following research hypotheses are presented:

H_3: REM mediates the relation between overconfidence and subsequent performance.

METHODOLOGY

Data and Sample

Firms that are listed on the Egyptian stock market exchange comprise the data and samples used in this paper from 2011 to 2019. The study is confined to the time frame after 2012 because we need data from one year ago to determine the difference in net sales. The study is confined prior to 2018 to be able to examine years of subsequent earnings. Due to the unique nature of their financial reports, firms in the banking and financial services industries are excluded. Number of bootstrap samples for percentile bootstrap confidence intervals is 50000. The financial information needed to measure the study variables in the linear regression model gathered from the published financial reports.

Research Models

Model (1): CEO overconfidence and REM activities:

$$REMI_t = \lambda_1 + aOVC_t + \mu_1 LEV_t + e$$

***a*:** The a coefficient in model (1) measures the estimated difference in REM between two cases with a one-unit difference in CEO overconfidence.

Model (2): The relation between overconfidence and future performance mediated by REM:

$$\text{Adj}ROA_{t+1} = \lambda_2 + c'OVC_{it} + b\ EMI_{it} + \mu_2 LEV_t + e$$

***c'*:** The regression coefficient c′ in model (2) estimates the overconfidence direct effect on subsequent performance controlling for REM.

***b*:** *b* coefficient represents the REM effect on future performance controlling for overconfidence.

Model (3): CEO overconfidence and subsequent performance:

$$\text{Adj}ROA_{t+1} = \lambda_3 + cOVC_t + \mu_3 LEV_t + e$$

c: The *c* coefficient in model (3) measures the estimated difference in performance between two cases with one unit of overconfidence difference.

Measurement of Variables

Following Schrand and Zechman [23], Ahmed and Duellman [39] and Zaher [40], using an investment-based metric, overconfidence is measured. If capital expenditures in period *t*, divided by total assets (TA) in period *t*+1, exceed the median of industry for the year, the measurement is one; otherwise, it is zero.

Roychowdhury [2] divided the common measurements of REM into three individual metrics: sales manipulation, overproduction, and a decrease in discretionary expenditures. The 3 REM practices that boost bottom-line earning are taken into account when calculating REM.

Sales manipulation is the acceleration of when sales are made by using price discounts or relaxed credit requirements. These credit terms and discounts will boost volume of sales, but decrease margins, resulting in a decrease in abnormal cash flows. Sales and changes in sales are a linear function of the level of operating cash flow, as shown below:

$$CFO_t / TA_{t-1} = \beta_1(1 / TA_{t-1}) + \beta_2(S_t / TA_{t-1}) + \\ + \beta_3(\Delta S_t / TA_{t-1}) + \varepsilon_t \text{ Model (A).}$$

Production should be increased to reduce costs, but increased yearly inventory costs and reduced cash flows will arise from other production and holding costs, resulting in higher abnormal production costs. The following is the estimated normal cost of production:

$$PROD_t / TA_{t-1} = \beta_1(1 / TA_{t-1}) + \beta_2(S_t / TA_{t-1}) + \\ + \beta_3(\Delta S_t / TA_{t-1}) + \beta_4(\Delta S_{t-1} / TA_{t-1}) + \varepsilon_{i,t} \text{ Model (B).}$$

Managers can reduce discretionary expenses to increase current earnings, resulting in lower abnormal expenses. The model following is used to yield the normal level of discretionary expenses:

Table 1

Summary of Research Variables

Variable Symbol	Name	Operational Definition
AdjROA	Industry adjusted *ROA*	The difference between firm specific ROA and the median ROA for the same year and industry
REMI	Real earnings management index	As computed by Cohen et al. (2008)
OVC	CEO overconfidence	If the firm's capital expenditures deflated by lagged total assets are higher than the sector median for that year, then the value is 1, otherwise it is 0
LEV	Leverage	The total debt to total assets

Source: Compiled by the author.

$$DISX_t / TA_{t-1} = \beta_1 (1 / TA_{t-1}) + \\ + \beta_2 (S_{t-1} / TA_{t-1}) + \varepsilon_t \text{ Model (C).}$$

In order to fully represent the overall impact of REM, 3 proxies of real activities management are combined within one proxy, REMI, as follows:

$$REMI = Abn\ PR - Abn\ CFO - Abn\ DE.$$

REM and overconfidence are not the only variables that affect subsequent performance. Leverage measured in previous studies as a covariate variable influencing subsequent performance (Gunny, 2010; Kouaib and Jarbou, 2017). Thus, control variable in this study is LEV to control for leverage ratio. A list of the study's variables is provided in *Table 1*.

Descriptive Statistics

Table 2 below provides descriptive statistics for the complete sample of 490 firm-year observations. The mean of sector-adjusted return on assets ($AdjROA_{t+1}$) is .008 with a standard deviation of 8.2% and falls between –17.2% and 26%. The mean of CEO overconfidence (OC) is .50 with a standard deviation of 50.1% and exists between zero and one. The real earnings management index (REMI) mean is –.001 having a standard deviation of 18.2% and falls between –.559 and .392. As to the control variable, the leverage (Lev) mean is .403 having a standard deviation of 23.9% and falls between 1.4% and 93.8%.

Correlation Analysis

Table 3 presents Pearson correlation between all variables. This table reveals that the highest correlation between independent variables is 46.3 percent. This implies that there is no indicator of multicollinearity between all independent variables as correlation coefficients are less than 70 percent. *Table 3* shows that there is a significant and positive correlation between adjusted return on assets as a dependent variable and CEO overconfidence, which suggests that companies with CEO overconfidence tend to have better subsequent performance. There is a significant negative relation between adjusted return on assets as a dependent variable and REM and leverage.

RESULTS AND DISCUSSION

Statistical Analysis

Adjusted R-squared for regression model (1) is 2.6%, which means that the independent variables account for 2.6% of the variations in the dependent variable REM. The p-value of overall significance equals .002, which means that the model is significant at α = 1%.

For CEO overconfidence and leverage, the coefficients on REM are (–.033)* and (.098)** respectively. This implies that overconfidence and REM have a strong negative relationship at α = 5%, and leverage positively correlates at α = 1%.

With an adjusted R-squared of 28.9% for regression model (2), it can be concluded that the independent variables account for 28.9% of the variation in subsequent performance. The p-value < .001, which means that the model is significant at α = 1%.

For CEO overconfidence, REM and leverage, the coefficients on subsequent performance are (.016)*, (–.188)** and (–.086)** respectively. This indicates that overconfidence and subsequent performance have a significant positive association at α = 5%, REM and leverage has negative relation at α = 1%.

With an adjusted R-squared of 11.7%, the regression model (3) demonstrates that the independent

Table 2

Descriptive Statistics

Variable	Mean	Std. Deviation	Minimum	Maximum
Ad_ROA_{t+1}	.008	.082	–.172	.260
OVC	.50	.501	0	1
REMI	–.001	.182	–.559	.392
Lev	.403	.239	.014	.938

Source: Compiled by the author.

Table 3

Correlation matrix

Variable		Adj.ROAt+1	OC	REMI	Lev
$Adj.\ ROA_{t+1}$	Pearson Correlation	1	.152**	–.463**	$Adj.ROA_{t+1}$
	Sig. (2-tailed)		.001	.000	.000
OVC	Pearson Correlation	.152**	1	–.098*	*OVC*
	Sig. (2-tailed)	.001		.030	.312
REMI	Pearson Correlation	–.463**	–.098*	1	*REMI*
	Sig. (2-tailed)	.000	.030		.003
Lev	Pearson Correlation	–.313**	–.046	.132**	*Lev*
	Sig. (2-tailed)	.000	.312	.003	

Source: Compiled by the author.

Notes: * the relationship is significant at the level of 0.05 (2-tailed); ** the relationship is significant at the level of 0.01 (2-tailed).

variables explain 11.7% of the variation in subsequent performance. The p-value < .001, which means that the model is significant at α = 1%.

For CEO overconfidence and leverage, the coefficients on subsequent performance are (.022)** and (–.105)*1* respectively. This indicates that overconfidence and subsequent performance have a significant positive association at α = 1%, and leverage has a significant negative relation at α = 1%. A summary of the regression analysis is shown in *Table 4*, and *Fig.* statistical model diagram has the regression coefficients superimposed on it.

As shown, $a = –.033$, $b = –.188$, $c' = .016$. Using equations 1 and 2, without the error term, and expressing in terms of the estimated values for *X, M, C,* and *Y.*

$$M_e = –.023 – .033X + .098C$$
$$(.041)^* \ (.004)^*$$
$$Y = .034 + .016X – .188M – .086C$$
$$(.010)^* \ (< .001)^* \ (< .001)^{**} = P\text{-}value$$

Which means that: the indirect effect = $(a * b)$ = $= (–.033) * (–.188) = .006$. The direct effect = $c' = .016$. The total effect = $c' + (a * b) = .016 + .006 = .022$.

Statistical Inference and Hypotheses Test

Inference of X's Total Effect on Y

$$Y = .039 + .022\,X – .105\,c.$$

The total effect is $c = .022$, it meets significance using an α = 0.05, $t = 3.225$; $p = .001$. With 95% confidence, ${}_Tc$ exists between .009 and .036, which means we reject H_0: ${}_Tc = 0$ because the interval estimate does not include zero.

Inference of X's Direct Eeffect on Y

To do this, one of two things must be done: either construct a confidence interval for Tc' or test the null hypothesis of Tc' against the alternative one. If it is different from zero, this confirms the claim

Table 4

Regression Coefficients

	Me (REM)			Y (Subsequent performance)		
	Coeff.	**S.E.**	**p-value**	**Coeff.**	**S.E.**	**p-value**
X (OVC)	a = –.033	.016	.041	c'= .016	.006	.010
Me (REMI)	–	–	–	b = –.188	.017	< .001
C (Lev)	.098	.034	.004	–.086	.013	< .001
Const.	λ^1 = –.023	.018	.212	λ^2 = .034	.007	< .001
R^2 = .026 F = 6.482 P = .002				R^2 = .289 F = 65.673 P < .001		

Source: Compiled by the author.

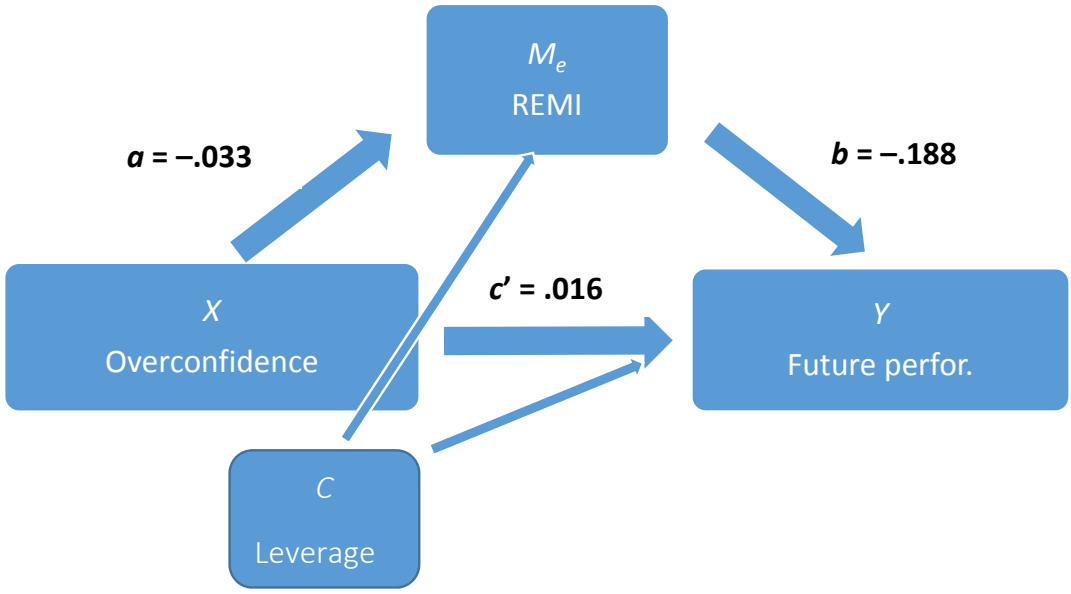

Fig. **Research Mediation Model Statistical Diagram**

Source: Compiled by the author.

that overconfidence affects future performance independent of the REM mechanism. If not, it can be claimed that there is no proof of a correlation between overconfidence and performance when the mechanism through REM is taken into account. In other words, regardless of how *M* affects *Y*, *X* has no impact on *Y*.

The direct effect is found in the PROCESS output of model (2). The direct effect is *c'* = .016, it is statistically significant using an α = 0.05, *t* = 2.571; *p* = .010. With 95% confidence, $_Tc$ exists between .004 and .028, which means we reject H_0: $_Tc$ = zero and alternative hypothesis H_a: $_Tc \neq 0$ cannot be rejected because zero is not included in the interval estimate for $_Tc$.

Inference of Indirect Effect of X on Y Via M

The indirect effect is *ab* = –.033 * –.188 = .006, it is statistically significant using an α = 0.05, *p* = .006. With 95% confidence, $_Tc$ exists between .001 and .014, which means we reject H_0: $_Tc$ = zero and alternative hypothesis H_a: $_Tc \neq 0$ cannot be rejected because zero is not included in the interval estimate for $_Tc$.

CONCLUSION

This paper examines the role of REM mediation in the relationship between CEO overconfidence and subsequent performance. The conditional process analysis is used in testing the indirect and direct

relationships between executive overconfidence and performance. The first hypothesis, argues that managerial overconfidence affects subsequent performance. The findings indicate that H_0 is rejected and there is a strong positive effect of executive overconfidence on subsequent performance. The second hypothesis argues that overconfidence significantly affects REM. The results revealed that H_0 is rejected and there is a strong positive effect of executive overconfidence on REM activities. The last hypothesis claims that managerial overconfidence influences subsequent performance indirectly via REM. The results indicate that H_0 cannot be rejected and the association between overconfidence and subsequent performance is mediated by the REM activities. The difference in results compared to previous literature is due to this paper's focus on the Egyptian context.

The estimated direct effect of managerial overconfidence on future performance is 1.6% means that independent of the impact of REM on company's subsequent performance. According to estimates, overconfident CEOs are estimated to have a 1.6% higher subsequent performance than other CEOs.

The indirect effect is calculated as the sum of the CEO overconfidence effect on REM, and the REM effect on subsequent performance when CEO overconfidence is held fixed. So relative to firms that do not have CEO overconfidence, firms with CEO overconfidence are, on average, .6% higher in their subsequent performance because of the effects of overconfidence on REM, which affect performance of the firm afterward.

The overconfidence total effect on subsequent performance equals 2.2%, which means, relative to firms that do not have CEO overconfidence; firms with CEO overconfidence are 2.2% higher in their subsequent performance. This implies that firms planning to hire CEOs with excessive confidence who can make decisions for the benefit of the firm could increase their performance. Therefore, the hiring process should be biased to hire overconfident CEO's.

Since managerial overconfidence could influence subsequent performance via REM, the findings could be beneficial to regulators of accounting. Understanding how CEO overconfidence affects firm performance can be helpful because it can help businesses decide whether to hire overconfident CEOs. It is recommended that companies keep psychological characteristics in mind when choosing managers, as high managerial overconfidence positively affects firm performance. Furthermore, training programs should be implemented to exploit cognitive biases and compensation committees should be used to maximize shareholder value with overconfident CEO's.

ACKNOWLEDGEMENTS

I appreciate the comments of my PhD supervisors: Ahmed H. Behairy and Mohamed E. Abulezz, professors of Accounting, faculty of commerce, Zagazig University. All errors are my own.

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Conflicts of Interest Statement: The author has no conflicts of interest to declare.

The article was submitted on 04.03.2023; revised on 28.04.2023 and accepted for publication on 26.05.2023.
The author read and approved the final version of the manuscript.